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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/677,112	09/30/2003	Christoph Hofmann	34874-063 UTIL	4325

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EXAMINER	
LIU, LIN	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/677,112	HOFMANN ET AL.	
	Examiner	Art Unit	
	Lin Liu	2145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is responsive to communications filed on 09/30/2003.

Claims 1-22 are pending and have been examined.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 1-22** rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For claim 1, the phrase "...at least one event..." of line 6 is indefinite because it is unclear as to what applicant is referring to by "at least one event". Claims 2-11 are dependent claims of claim 1, thus they are rejected for the same reason.

For claim 12, the phrase "...one or more event..." of line 2 is indefinite because it is vague and unclear as what applicant is referring to. Claims 13-18 are dependent claims of claim 12, thus they are rejected for the same reason.

For claim 19, the term "an event" of line 9 is indefinite because it is vague and unclear as what applicant is referring to by "an event". Claims 20-22 are dependent claims of claim 19, thus they are rejected for the same reason.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. **Claims 12-18** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 12 recites a condition; "... if an acknowledgement to the event associated with the asynchronous request message is requested, transmitting...", if this condition was not to occur, there would be no real-world result impact. In order for a method claim to be statutory, it must result in a useful, concrete and tangible result. Claims 13-18 are dependent claims of claim 12, thus they are rejected under the same reason.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1 and 4-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ho et al. (publication no.: US 2003/0135640 A1)** in view of **Wilhelmsson (Patent no.: US 5,654,969).**

With respect to **claim 1,** Ho teaches a computer-implemented communication method, comprising:

providing one or more requests for acknowledgement in data frames transmitted from a sender system (Ho, fig. 5, page 4, paragraph 33, noted the acknowledgement request frame 104 is transmitted from transmitting station to the receiving station), wherein each request for acknowledgement corresponds to at least one event related to the data frame (Ho, page 4, paragraph 35, noted that the acknowledgement frame indicates whether or not the associated data frame was correctly received); and

transmitting the data frames with the one or more requests for acknowledgement to a receiver system (Ho, page 4, paragraph 33, note that the transmitting station transmits data frames with an acknowledgement request frame to the receiving station).

However, Ho does not explicitly teach dividing an asynchronous request message into number of data frames and transmit them from a sender to a receiver system.

In the same of endeavor, Wilhelmsson teaches dividing an asynchronous request message into number of data frames and transmit them from a sender to a receiver system (Wilhelmsson, col. 7, lines 63-67).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the method of dividing the asynchronous request

message into number of data frames and transmitting them from a sender to a receiver system as taught by Wilhelmsson in Ho's invention in order to minimize the load on the transmission channels.

With respect to **claim 4,** the combined method of Ho and Wilhelmsson teaches the method in accordance with claim 1, wherein the event includes a system error during transport of the request message to the receiver system (Ho, page 4, paragraph 35, noted that the acknowledgement frame has a value in indicating if the data frame was received correctly).

With respect to **claim 5,** the combined method of Ho and Wilhelmsson teaches the method in accordance with claim 1, wherein the event includes the receipt of the request message by the receiver system (Ho, page 4, paragraph 35, noted that the acknowledgement frame has a value in indicating if the data frame was received correctly).

With respect to **claim 6,** the combined method of Ho and Wilhelmsson teaches the method in accordance with claim 1, wherein the event includes the successful processing of the request message by an application associated with the receiver system (Ho, page 4, paragraph 37, noted that upon successful processing and buffering the data frames at the receiving station, it sends back a value to the transmitting station indicating the available storage space for the future data frames).

With respect to **claim 7,** the combined method of Ho and Wilhelmsson teaches the method in accordance with claim 1, wherein the event includes the erroneous processing of the request message by an application associated with the receiver

system (Ho, page 4, paragraph 35 noted that the acknowledgement frame includes a value in indicating whether the data frame was received correctly).

With respect to **claim 8 and 9,** the combined method of Ho and Wilhelmsson teaches the method in accordance with claim 1, further comprising generating and transmitting the acknowledgement message upon completion of the event to the sender system (Ho, page 4, paragraph 35 noted that the acknowledgement frame is sent from the receiving station to the transmitting station, which includes a value in indicating whether the data frame was received correctly).

With respect to **claim 10,** the combined method of Ho and Wilhelmsson teaches the method in accordance with claim 1, further comprising:

generating a hoplist that includes a list of network components through which the request message is transmitted (Ho, fig. 7 and page 5, paragraph 41, noted the TA and RA network components); and

transmitting an acknowledgement message related to each request for acknowledgement through network components corresponding to the hoplist (Ho, fig. 7 and page 5, paragraph 41, noted that the acknowledgement message is transmitted from receiving station at the Receiving Address (RA) to the sender station at the Transmitting Address (TA)).

With respect to **claim 11,** Ho teaches that each of the data frame corresponds to one or more requests for acknowledgement (Ho, page 1, paragraph 9), and receiving an acknowledgement message related to event associated with each child message (Ho, page 1, paragraph 9). However, Ho does not explicitly teach a method of splitting, at

one or more network components between the sender system and the receiver system, a request message that is transmitted to one or more receiver systems into two or child messages.

In the same field of endeavor, Wilhelmsson teaches a method of splitting, at one or more network components between the sender system and the receiver system, a request message that is transmitted to one or more receiver systems into two or child messages (Wilhelmsson, col. 7, lines 63-67).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the method of dividing the request message into number of data frames and transmitting them from a sender to a receiver system as taught by Wilhelmsson in Ho's invention in order to minimize the load on the transmission channels.

With respect to **claim 12,** Ho teaches a computer-implemented communication method for acknowledging one or more events related to an asynchronous request message sent from a sender system to a receiver system (Ho, fig. 5), the method comprising:

receiving data frames from the sender system (Ho, page 4, paragraph 33, noted that the transmitting station transmits data frames to the receiving station);

determining, based on the data frames, whether an acknowledgement to an event associated with the data frame is requested (Ho, page 4, paragraph 35, noted that the receiving station sends an acknowledgment frame back to the sender station,

wherein the acknowledgement frame includes a value in indicating whether the data frame was received correctly); and

if an acknowledgement to the event associated with the asynchronous request message is requested, transmitting an asynchronous acknowledgement message to the sender system upon occurrence of the event (Ho, page 4, paragraph 35, noted that the receiving station sends an acknowledgment frame back to the sender station, wherein the acknowledgement frame includes a value in indicating whether the data frame was received correctly), wherein the asynchronous acknowledgement message includes a result of the event and a reference to the data frame (Ho, page 4, paragraph 34, noted that the result and the reference value is indicated by the bitmap value).

However, Ho does not explicitly teach dividing an asynchronous request message into number of data frames and transmit them from a sender to a receiver system.

In the same of endeavor, Wilhelmsson teaches dividing an asynchronous request message into number of data frames and transmit them from a sender to a receiver system (Wilhelmsson, col. 7, lines 63-67).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the method of dividing the asynchronous request message into number of data frames and transmitting them from a sender to a receiver system as taught by Wilhelmsson in Ho's invention in order to minimize the load on the transmission channels.

With respect to **claim 13,** the combined method of Ho and Wilhelmsson teaches the method in accordance with claim 12, wherein the event corresponds to one or more events selected from the event group that consists of:

the receipt of the asynchronous request message by the receiver system;

a system error during transport of the request message to the receiver system (Ho, page 4, paragraph 35, noted that the acknowledgement frame has a value in indicating if the data frame was received correctly);

the successful processing of the request message; and/or

the erroneous processing of the request message

With respect to **claim 14,** the combined method of Ho and Wilhelmsson teaches the method in accordance with claim 12, wherein the asynchronous acknowledgement message is generated by the receiver system (Ho, page 4, paragraph 35), and further comprising receiving the asynchronous acknowledgement message from the receiver system (Ho, page 4, paragraph 35, noted that the acknowledgement frame is sent from receiving station to the sender system, thus the sender system receives the acknowledgement frame).

Claims 2, 3, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ho et al. (publication no.: US 2003/0135640 A1)** in view of **Wilhelmsson (Patent no.: US 5,654,969)** and further in view of **Frymier (Patent no.: US 5,604,487).**

With respect to **claims 2 and 3,** the combined method of Ho and Wilhelmsson teaches all the claimed limitations except that they do not explicitly teach a method of setting a flag in a header of the asynchronous request message.

In the same field of endeavor, Frymier teaches a method of setting a flag in a header of the asynchronous request message (Frymier, col. 31, lines 42-49, noted the 'more data' flag).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the method of setting a 'more data' flag in the header of the asynchronous request message as taught by Frymier in the combined method of Ho and Wilhelmsson invention in order to notifying the receiver system that there are more data packets follow.

With respect to **claim 17,** the combined method of Ho and Wilhelmsson teaches all the claimed limitations except that they do not explicitly teach a method of reading a flag in a header of the asynchronous request message.

In the same field of endeavor, Frymier teaches a method of reading a flag in a header of the asynchronous request message (Frymier, col. 31, lines 42-49, noted the 'more data' flag).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the method of reading a 'more data' flag in the header of the asynchronous request message as taught by Frymier in the combined method of Ho and Wilhelmsson invention in order to notifying the receiver system that there are more data packets follow.

With respect to **claim 18,** the combined method of Ho and Wilhelmsson teaches all the claimed limitations except that they do not explicitly teach a that the flag is set by the sender system.

In the same field of endeavor, Frymier discloses that the flag is set by the sender system (Frymier, col. 31, lines 42-56, noted that the flag is set in the data header and transmitted to the receiving side).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the method of setting a 'more data' flag in the header of the asynchronous request message as taught by Frymier in the combined method of Ho and Wilhelmsson invention in order to notifying the receiver system that there are more data packets follow.

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ho et al. (publication no.: US 2003/0135640 A1)** in view of **Wilhelmsson (Patent no.: US 5,654,969)** and further in view of **Bunton (patent no.: US 7,010,607 B1).**

With respect to **claim 15 and 16,** the combined method of Ho and Wilhelmsson teaches all the claimed limitations except that they do not explicitly teach a method of matching and comparing the reference of the asynchronous acknowledgement message to a message ID of a copy of the asynchronous request message.

In the same field of endeavor, Bunton teaches a method of matching and comparing the reference of the asynchronous acknowledgement message to a

message ID of a copy of the asynchronous request message (Bunton, col. 75 lines 62 to col. 76 lines 15).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the method of comparing the sequence number of the frames as taught by Bunton in the combined method of HO and Wilhelmsson invention in order to ensure that each data frames are acknowledged by the receiver system.

Claims 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ruutu et al. (patent no.: US 7,032,111 B1)** in view of **Bunce et al. (publication no.: US 2003/0163589 A1).**

With respect to **claim 19,** Ruutu teaches a system for asynchronous communication between a sender system and a receiver system (Ruutu, fig. 7), comprising:

a forward for transmitting asynchronous request messages from the sender system to the receiver system (Ruutu, fig. 7, col. 8, lines 40-43, noted that the packet is sent from the source host to the network element and forwarded to the destination host); and

a backward for transmitting asynchronous acknowledgement messages from the receiver system to the sender system (Ruutu, fig. 7, col. 8, lines 43-49, noted that the destination host encrypts the ACK message in the header packet and sends to the network element, wherefore the network element forwards the packet to the source

host), wherein each acknowledgement message includes a reference to a request message (Ruutu, col. 2, lines 40-41, noted the ACK flag and the acknowledgement number) and a result of an event associated with the request message (Ruutu, col. 8, lines 40-67, noted that the pack sent by the source host is received by the destination host and an ACK message is sent back to the source host).

However, Ruutu does not explicitly teach pipeline processing the packets in the network element.

In the same of endeavor, Bunce teaches pipeline processing the packets in the network element (Bunce, page 1 paragraph 7 and page 2, paragraph 21).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the method pipelined packet processing at the network element as taught by Bunce in the Ruutu's invention in order to provide a dynamic allocation of processors in processing tasks to maximize efficient processing resource allocation and reduces pipeline imbalance, and ensuring a flexible solution and maximal throughput in packet processing (Bunce, page 1, paragraph 7).

With respect to **claim 20,** Ruutu teaches the system in accordance with claim 19, further comprising an enterprise application integrator hosted on a server (Ruutu, fig. 7, network element 20), and wherein the forward pipeline includes a first HTTP connection from the sender system to the server and a second HTTP connection from the server to the receiver system (Ruutu, col. 8, lines 40-67, noted that the network element receives the packet from the source host and forwards the packet to the destination host, thus it is an inherent feature for the network element to have a connection from the source

host to the network element and another connection from network element to the destination host).

With respect to **claim 21**, Ruutu teaches the system in accordance with claim 19, wherein the backward pipeline includes a first HTTP connection from the receiver system to the server and a second HTTP connection from the server to the sender system (Ruutu, col. 8, lines 40-67, noted that the network element receives TCP packet with ACK message encrypted from the destination host and forwards the packet to the source host, thus it is an inherent feature for the network element to have a connection from the destination host to the network element and another connection from network element to the source host).

With respect to **claim 22,** Ruutu teaches all the claimed limitations, except that he does not explicitly teach a method of storing a copy of a request message and an acknowledgement message in a database.

In the same of endeavor, Bunce teaches storing a copy of a request message and an acknowledgement message in a database (Bunce, page 2, paragraph 21, noted that the multi-processor server buffers the inbound and outbound packets).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the method of buffering the inbound and outbound packets as taught by Bunce in Ruutu's invention in storing the request and acknowledgement messages in order to have a copy of the message ready after the network element observer for the network congestion and ready to forwards the message.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Habusha et al. (patent no.: US 6,477,590 B1) discloses method for message transfer session management.
- Eberle et al. (patent no.: US 7,065,580 B1) discloses a method for a pipelined network.
- Kohno (publication no.: US 2003/0120802 A1) discloses a data communication system for automatic repeat request for transmission of packets.
- Cunningham et al. (publication no.: US 2004/0003106 A1) discloses a method for improved performance using tunable TCP/IP acknowledgement.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lin Liu whose telephone number is (571) 270-1447. The examiner can normally be reached on Monday - Friday, 7:30am - 5:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Cardone can be reached on (571) 272-3933. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

L.Liu
06/15/2007

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